

What is claimed is:

1. A whitening agent comprising a crystalline molecular complex composed of hydroquinone or a derivative thereof and a surfactant, characterized in that formation of said molecular complex improves the storage stability of the hydroquinone-containing whitening agent against heat, oxygen and light, while said hydroquinone is gradually released for a sustained whitening effect of said whitening agent.
- 10 2. A whitening agent according to claim 1, wherein said hydroquinone or its derivative is selected from the group consisting of hydroquinone, hydroquinone monobenzyl ether, hydroquinone monomethyl ether and hydroquinone monoethyl ether.
- 15 3. A whitening agent according to claim 1, wherein said hydroquinone or its derivative is hydroquinone.
- 20 4. A whitening agent according to any one of claims 1 to 3, wherein said surfactant is selected from the group consisting of octadecyltrimethylammonium bromide (STAB), octadecyltrimethylammonium chloride (STAC), hexadecyltrimethylammonium bromide (CTAB), hexadecyltrimethylammonium chloride (CTAC), tetradecyltrimethylammonium bromide (MTAB), tetradecyltrimethylammonium chloride (MTAC),  
25 hexadecyldimethylbenzylammonium bromide (CDBAB), hexadecyldimethylbenzylammonium chloride (CDBAC), tetradecyldimethylbenzylammonium bromide (BZB), tetradecyldimethylbenzylammonium chloride (BZCL), dodecyltrimethylammonium bromide (LTAB),  
30 dodecyltrimethylammonium chloride (LTAC), decyltrimethylammonium bromide (DTAB), decyltrimethylammonium chloride (DTAC), dodecyldimethylbenzylammonium bromide (LDBAB), dodecyldimethylbenzylammonium chloride (LDBAC),  
35 decyldimethylbenzylammonium bromide (DDBAB), decyldimethylbenzylammonium chloride (DDBAC) and n-dodecyl- $\beta$ -D-maltoside (DM).

5. A whitening agent according to any one of claims 1 to 3, wherein said surfactant is selected from the group consisting of octadecyltrimethylammonium chloride (STAC), hexadecyltrimethylammonium chloride (CTAC), tetradecyltrimethylammonium chloride (MTAC), hexadecyldimethylbenzylammonium chloride (CDBAC) and tetradecyldimethylbenzylammonium chloride (BZCL).

6. A whitening agent according to any one of claims 1 to 3, wherein said surfactant is CDBAC.

10 7. The use of a crystalline molecular complex composed of hydroquinone or a derivative thereof and a surfactant for production of a whitening agent, characterized in that formation of said molecular complex improves the storage stability of the hydroquinone-containing whitening agent against heat, oxygen and light, while said hydroquinone is gradually released for a sustained whitening effect of said whitening agent.

20 8. The use according to claim 7, wherein said hydroquinone or its derivative is selected from the group consisting of hydroquinone, hydroquinone monobenzyl ether, hydroquinone monomethyl ether and hydroquinone monoethyl ether.

9. The use according to claim 7, wherein said hydroquinone or its derivative is hydroquinone.

25 10. The use according to any one of claims 7 to 9, wherein said surfactant is selected from the group consisting of octadecyltrimethylammonium bromide (STAB), octadecyltrimethylammonium chloride (STAC), hexadecyltrimethylammonium bromide (CTAB), hexadecyltrimethylammonium chloride (CTAC), 30 tetradecyltrimethylammonium bromide (MTAB), tetradecyltrimethylammonium chloride (MTAC), hexadecyldimethylbenzylammonium bromide (CDBAB), hexadecyldimethylbenzylammonium chloride (CDBAC), tetradecyldimethylbenzylammonium bromide (BZB), 35 tetradecyldimethylbenzylammonium chloride (BZCL), dodecyltrimethylammonium bromide (LTAB),

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dodecyltrimethylammonium chloride (LTAC),  
decyltrimethylammonium bromide (DTAB),  
decyltrimethylammonium chloride (DTAC),  
dodecyldimethylbenzylammonium bromide (LDBAB),  
5 dodecyldimethylbenzylammonium chloride (LDBAC),  
decyldimethylbenzylammonium bromide (DDBAB),  
decyldimethylbenzylammonium chloride (DDBAC) and n-  
dodecyl- $\beta$ -D-maltoside (DM).

11. The use according to any one of claims 7 to 9,  
10 wherein said surfactant is selected from the group  
consisting of octadecyltrimethylammonium chloride (STAC),  
hexadecyltrimethylammonium chloride (CTAC),  
tetradecyltrimethylammonium chloride (MTAC),  
hexadecyldimethylbenzylammonium chloride (CDBAC) and  
15 tetradecyldimethylbenzylammonium chloride (BZCL).

12. The use according to any one of claims 7 to 9,  
wherein said surfactant is CDBAC.

13. A whitening method for skin wherein a whitening  
agent comprising a crystalline molecular complex composed  
20 of hydroquinone or a derivative thereof and a surfactant  
is applied to pigmented skin, the method being  
characterized in that formation of said molecular complex  
improves the storage stability of the hydroquinone-  
containing whitening agent against heat, oxygen and  
25 light, while said hydroquinone is gradually released for  
a sustained whitening effect of said whitening agent.

14. A whitening method according to claim 13,  
wherein said hydroquinone or its derivative is selected  
from the group consisting of hydroquinone, hydroquinone  
30 monobenzyl ether, hydroquinone monomethyl ether and  
hydroquinone monoethyl ether.

15. A whitening method according to claim 13,  
wherein said hydroquinone or its derivative is  
hydroquinone.

35 16. A whitening method according to any one of  
claims 13 to 15, wherein said surfactant is selected from  
the group consisting of octadecyltrimethylammonium

bromide (STAB), octadecyltrimethylammonium chloride (STAC), hexadecyltrimethylammonium bromide (CTAB), hexadecyltrimethylammonium chloride (CTAC),  
5 tetradecyltrimethylammonium bromide (MTAB), tetradecyltrimethylammonium chloride (MTAC), hexadecyldimethylbenzylammonium bromide (CDBAB), hexadecyldimethylbenzylammonium chloride (CDBAC), tetradecyldimethylbenzylammonium bromide (BZB), tetradecyldimethylbenzylammonium chloride (BZCL),  
10 dodecyltrimethylammonium bromide (LTAB), dodecyltrimethylammonium chloride (LTAC), decyltrimethylammonium bromide (DTAB), decyltrimethylammonium chloride (DTAC), dodecyldimethylbenzylammonium bromide (LDBAB),  
15 dodecyldimethylbenzylammonium chloride (LDBAC), decyldimethylbenzylammonium bromide (DDBAB), decyldimethylbenzylammonium chloride (DDBAC) and n-dodecyl- $\beta$ -D-maltoside (DM).

17. A whitening method according to any one of  
20 claims 13 to 15, wherein said surfactant is selected from the group consisting of octadecyltrimethylammonium chloride (STAC), hexadecyltrimethylammonium chloride (CTAC), tetradecyltrimethylammonium chloride (MTAC), hexadecyldimethylbenzylammonium chloride (CDBAC) and  
25 tetradecyldimethylbenzylammonium chloride (BZCL).

18. A whitening method according to any one of claims 13 to 15, wherein said surfactant is CDBAC.

19. A process for production of a whitening agent according to claim 1, which process comprises the  
30 following steps:

dispersing a crystalline molecular complex composed of hydroquinone or a derivative thereof and a surfactant in a first oil phase;  
35 preparing a second oil phase;  
preparing an aqueous phase;  
adding said aqueous phase to the second oil phase and stirring to form an emulsion; and

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adding said first oil phase containing said molecular complex to said emulsion and stirring to obtain a whitening cream containing the said molecular complex.

5 20. The process of claim 19, wherein said first oil phase contains mineral oil, white vaseline, liquid paraffin, polyoxyethylene (2) stearyl ether and/or polyoxyethylene stearyl ether stearate.

10 21. The process of claim 19, wherein said second oil phase contains mineral oil, jojoba oil, glycol distearate, polyoxyethylene (25) stearyl ether, polyoxyethylene isostearyl ether, sorbitan tristearate, octamethylcyclotetrasiloxane, tristearin, stearic acid, squalane and/or cetanol.

15 22. The process of claim 19, wherein said aqueous phase contains glycerin, 1,3-butanediol, trehalose, citric acid and/or EDTA-2Na, and purified water.